

WHAT IS CLAIMED IS:

1. A method for manufacturing an interconnect for an
2 integrated circuit, comprising:

3 forming a surface conductive lead in an opening formed within
4 a protective overcoat and over a barrier layer, a portion of the
5 barrier layer extending beyond the surface conductive lead; and
6 subjecting the portion of the barrier layer to a dry etch to
7 remove the portion, the dry etch selective to the barrier layer.

2. The method as recited in Claim 1 wherein the dry etch
2 includes carbon tetrafluoride.

3. The method as recited in Claim 2 wherein the dry etch
2 further includes nitrous oxide.

4. The method as recited in Claim 2 wherein the dry etch
2 further includes oxygen or chlorine.

5. The method as recited in Claim 1 wherein the barrier
2 layer is a tungsten titanium barrier layer.

6. The method as recited in Claim 1 wherein the barrier
2 layer has a thickness ranging from about 200 nm to about 300 nm.

7. The method as recited in Claim 1 further including a seed
2 layer located between the barrier layer and the surface conductive
3 lead, and further including subjecting the seed layer to a wet etch
4 prior to subjecting the portion of the barrier layer to the dry
5 etch.

8. The method as recited in Claim 7 wherein the wet etch
2 includes an etch chemistry including hydrogen peroxide and sulfuric
3 acid.

9. The method as recited in Claim 1 wherein the surface
2 conductive lead has a width ranging from about 3 μm to about 200
3 μm .

10. The method as recited in Claim 1 wherein the protective
2 overcoat comprises one or more layers selected from the group
3 consisting of silicon oxynitride layers, silicon oxide layers, and
4 silicon nitride layers, phospho-silicate glass layers, and organic
5 polymer layers.

11. An interconnect for use in an integrated circuit,
2 comprising:

3 a surface conductive lead located in an opening formed within
4 a protective overcoat; and

5 a barrier layer located between the protective overcoat and
6 the surface conductive lead, a portion of the barrier layer forming
7 a skirt that extends outside a footprint of the surface conductive
8 lead.

12. The interconnect recited in Claim 11 wherein the skirt
2 extends from about 250 nm to about 2000 nm outside the footprint.

13. The interconnect recited in Claim 11 wherein a thickness
2 of the skirt tapers down as it moves away from the surface
3 conductive lead.

14. The interconnect recited in Claim 11 further including a
2 seed layer located between the barrier layer and the surface
3 conductive lead, wherein substantially no undercut exists in the
4 seed layer.

15. The interconnect recited in Claim 11 wherein the surface
2 conductive lead has a width ranging from about 3 μm to about 200
3 μm .

16. A method for manufacturing an integrated circuit,

2 comprising:

3 forming transistor devices over a semiconductor substrate;

4 forming one or more metallization layers over the transistor
5 devices, the one or more metallization layers interconnecting one
6 or more of the transistor devices;

7 forming a protective overcoat over the one or more
8 metallization layers, wherein the protective overcoat has an
9 opening located therein;

10 forming a surface conductive lead in the opening and over a
11 barrier layer, a portion of the barrier layer extending beyond the
12 surface conductive lead; and

13 subjecting the portion of the barrier layer to a dry etch to
14 remove the portion, the dry etch selective to the barrier layer.

17. The method as recited in Claim 16 further including a

2 seed layer located between the barrier layer and the surface
3 conductive lead, and further including subjecting the seed layer to
4 a wet etch prior to subjecting the portion of the barrier layer to
5 the dry etch.

18. The method as recited in Claim 17 wherein the wet etch

2 includes an etch chemistry including hydrogen peroxide and sulfuric
3 acid.

19. The method as recited in Claim 16 wherein the surface
2 conductive lead has a width ranging from about 3 μm to about 200
3 μm .

20. The method as recited in Claim 16 wherein the protective
2 overcoat comprises one or more layers selected from the group
3 consisting of silicon oxynitride layers, silicon oxide layers, and
4 silicon nitride layers, phospho-silicate glass layers, and organic
5 polymer layers.